

ADDITIONS TO THE CRETACEOUS AMMONITE FAUNA OF EASTERN AUSTRALIA.

PART 2 (DESMOCERATIDÆ).*

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(Plates XXV-XXVI.)

Family DESMOCERATIDÆ Zittel.

IN the Cretaceous beds of Eastern Australia this family is known only from the Tambo Series of Upper Albian age. *Desmoceras* itself may be present in these beds. Two other genera of world-wide distribution (*Puzosia* and *Beudanticeras*) are known, while two new genera (*Boliteceras* and *Cophinoceras*) are now described from this area.

The investigation of these forms is rendered rather difficult by the approximation of *Beudanticeras ingente* to *Desmoceras* on the one hand and to *Puzosia longmani* on the other.

This raises the question whether the Australian desmoceratids as a group may not represent an offshoot from *Desmoceras* distinct from the European lineage.

Genus DESMOCERAS Zittel (emend Grossouvre).

DESMOCERAS (?) SP.

(Plate XXVI, figures 1 a, b.)

The present figured specimen may represent an unusually compressed species of *Desmoceras*. It is, however, possible that this form may be merely the young stage of *Beudanticeras ingente* which, as mentioned below, closely approaches *Desmoceras* in inflation and shell type. Until the earlier stages of that species are known with certainty it is inadvisable to attach any definite specific name to this form.

Locality.—Hughenden (M.M. Coll.).

* The earlier papers in this series have appeared in the Memoirs of the Queensland Museum, vol. viii, pt. 3 (1926) and vol. ix, pt. 1 (1927).

Genus PUZOSIA Bayle.

PUZOSIA LONGMANI Whitehouse.

1926 *Puzosia longmani* Whitehouse (13), p. 218, pl. 37, fig. 5; pl. 39, fig. 1.

No further specimens of this form have been found.

Genus BEUDANTICERAS Hitzel.

The Eastern Australian species included in this genus form an interesting suite. *B. mitchelli* and *B. flindersi* are normal forms within the genus. The other two species (*B. sutherlandi* and *B. ingente*) while apparently related to *B. mitchelli* are rather unusual, *B. sutherlandi* being remarkably involute and *B. ingente* unusually inflated.

BEUDANTICERAS MITCHELLI (Etheridge).

(Plate XXV, figure 2.)

1872 *Ammonites beudanti* var. *mitchelli* Etheridge (1) p. 345, pl. 23, fig. 1.

Remarks.—In a previous paper (13, p. 219) the writer followed R. Etheridge Jr. in regarding *Ammonites beudanti* var. *mitchelli* Etheridge as a synonym of *Ammonites flindersi* McCoy. At that time McCoy's type specimen had not been figured and the holotype of neither specimen had been examined by the writer. Since then both specimens have been seen, and it now appears that they represent two distinct species. It is necessary, therefore, to retain Etheridge's specific name.

B. mitchelli differs from *B. flindersi* in the sides being less convergent and the umbilicus more gradate, while the septal suture of the species has more wide-stemmed saddles than those of *B. flindersi*. Among foreign species it appears to be most like *B. sphærotum* (Seeley) (see 12, p. 53, pl. 3, fig. 1), though it is rather less involute. *B. sphærotum* also has periodic swellings, hardly to be called costæ, similar to those which occur on *B. mitchelli*.

The original of Plate 23, fig. 1 in Etheridge's paper (1) is now chosen as lectotype. The other figured specimen has not been traced.

Dimensions.—Lectotype: 128. 49. 27. 27.

Locality.—Hughenden (Q.M. Coll., lectotype).

BEUDANTICERAS FLINDERSI (McCoy).

(Plate XXV, figure 3.)

1865 *Ammonites flindersi* McCoy (8), p. 51.

1865 *Ammonites flindersi* McCoy (9), p. 334.

1867 *Ammonites flindersi* McCoy (10), p. 196.

1868 *Ammonites flindersi* McCoy (11), p. 42.

1892 *Haploceras flindersi* Etheridge Jr. (6), p. 494, pl. 30, figs. 1-3.

1902 *Haploceras flindersi* Etheridge Jr. (4), p. 31.

1926 *Beudanticeras flindersi* Whitehouse (13), p. 219.

Opportunity is taken now to figure McCoy's holotype, of which hitherto no figure has been published.

With the exception of specimens originally described by Etheridge as *Ammonites beudanti* var. *mittelli*, all the figured specimens from Eastern Australia described as *Ammonites* (or *Haploceras*) *flindersi* belong to this species. It is distinguished from the closely related *B. mittelli* by the more convergent sides and by the saddles of the septal suture having narrower stems. Its relations have been fully discussed in an earlier paper in this series.

The South Australian fragment referred by Etheridge to *Haploceras daintreei* (3, p. 44, pl. 7, fig. 1) may be a portion of the body chamber belonging to this species, but the specimen is too indefinite for determination. It does not belong to *Parahoplitoidea*, as the writer had considered in an earlier paper (13, p. 206).

Dimensions :—Holotype : 150. 46. 25 (+). 26.
88. 48. 27. 28.

BEUDANTICERAS SUTHERLANDI (Etheridge).

(Plate XXV, figure 4.)

1872 *Ammonites sutherlandi* Etheridge (1), p. 345, pl. 21, fig. 4.

1892 *Ammonites* (*Haploceras*) *sutherlandi* Etheridge Jr. (6), p. 496, pl. 29, fig. 4.

1926 *Beudanticeras* (?) *sutherlandi* Whitehouse (13), p. 222.

This species, of which the holotype is now refigured, is an abnormal form of *Beudanticeras* in being so involute. It is, however, of the same group as *B. mittelli*.

This form appears to be rare in the Tambo Series. The holotype is the only large specimen which definitely can be referred to this species, although several small forms in various collections examined by the writer may represent *B. sutherlandi*.

Dimensions.—Holotype : 70. 53. 23. 21.

Locality.—Marathon (Q.M. Coll., holotype).

BEUDANTICERAS INGENTE sp. nov.

(Plate XXV, figure 1.)

Description.—Coiling oligogyral, subangustumbilicate. Whorls moderately inflated, sides slightly convergent, venter arched. Gradumbilicate. Test smooth, with periodic constrictions. Septal suture complex with deeply incised saddles and lobes, the first lateral lobe being rather unsymmetrically trifid.

Remarks.—The species is remarkable for its inflation, the nearest form in that respect being, apparently, the Indian *B. stoliczkaei* (Kossmat) (7, p. 119, pl. 18, fig. 6), which is similar also in lateral view. *B. ingente*, in proportions,

is approaching the type of shell shown by the more involute species of *Puzosia* such as *P. communis* Spath (12, p. 47, pl. 2, fig. 3). This suggests that *Puzosia longmani*, occurring also in the Tambo Series of Queensland, possibly may be a form related to the present species.

The shell has not quite the extreme inflation of *Desmoceras*. The species is thus, morphologically, somewhere on the border line between the genera *Desmoceras*, *Puzosia*, and *Beudanticeras*. From its general resemblance to *B. mitchelli* it is here regarded as belonging most appropriately to *Beudanticeras*, representing a species of that genus with a homeomorphic resemblance to forms in the two other genera mentioned.

Dimensions.—Holotype: 133. 49. 32. 23.

Locality.—Beaconsfield (G.S.Q. Coll.).

Genus BOLITECERAS nov.¹

Genotype: *Ammonites daintreei* Etheridge.

Definition.—Involute, sub-discoidal shells with peripheral costæ and faint periodic constrictions. Septal suture with rather wide-stemmed saddles and regularly trifid first lateral lobe.

Remarks.—The genus is proposed for the group of *Ammonites daintreei* which, on a previous occasion (p. 221), the writer had included provisionally in *Beudanticeras*, although stating that probably it was distinct from that genus. The recognition that *Ammonites daintreei* is not an isolated species with these features now emphasises the need for the group to receive separate generic recognition.

Boliteceras, as mentioned before (13, p. 221), is very similar to the Aptian *Uhligella* and, like it, develops puzosid ornament. The young stage (at least up to a diameter of 25 mm.), as shown on the holotype of *B. daintreei*, is more inflated than in the adult stage, has only striæ developed on the test, and has a rather sub-circular whorl section. This suggests that *Boliteceras* may have developed more or less directly from *Desmoceras*.

The genus is distinguished from *Beudanticeras* mainly by the ornament of the test.

Age.—Upper Albian.

BOLITECERAS DAINTREEI (Etheridge).

(Plate XXVI, figure 2.)

- 1872 *Ammonites daintreei* Etheridge (1), p. 346, pl. 24 (in part).
- 1892 *Haploceras daintreei* Etheridge Jr. (6), p. 495, pl. 29, figs. 1-3 (in part).
- 1901 *Haploceras daintreei* Etheridge Jr. (2), p. 30, pl. 1, fig. 3.
- 1902 *Haploceras daintreei* Etheridge Jr. (4), p. 49, pl. 7, fig. 1.
- 1926 *Beudanticeras* (?) *daintreei*, Whitehouse (13), p. 221.

¹βωλίτης, a mushroom.

The re-examination by the writer of the material originally described by Etheridge senior has brought to light a peculiar problem in regard to the holotype of this species. Three specimens were figured by Etheridge—a small specimen and two large forms—but no specimen was selected as the holotype. One of the large forms was figured accurately in apertural view; but the accompanying figure (1, pl. 24, top figure) in lateral view appears to have been drawn partly from the preceding specimen and partly from a more inflated form now separated as the holotype of *B. perlatum*. Since the form figured in apertural view (1, pl. 24, left lower figure) agrees with the interpretation of *Ammonites daintreei* by all later writers, that specimen (which is now refigured) is here selected as the lectotype.

Nothing further need be added to the remarks on a previous occasion (13, p. 221) about the specific features of *B. daintreei*.

The dimensions of the lectotype are:—

$$\begin{cases} 123. & 60. & — & 35 \\ 97. & 46. & 30. & 32. \end{cases}$$

BOLITECERAS PERLATUM sp. nov.

(Plate XXVI, figure 3.)

1872 *Ammonites daintreei* Etheridge (1), p. 346, pl. 24 (in part).

1892 *Haploceras daintreei* Etheridge (6), p. 495, pl. 29, figs. 1-3 (in part).

Description.—Coiling oligogyral, subangustumbilicate. Whorls inflated with slightly convergent sides and broadly arched venter. Gradumbilicate. Test with peripheral costæ and a few intermittent constrictions. Septal suture similar to *B. daintreei*.

Remarks.—This species may be distinguished from *B. daintreei* by its less convergent sides and its more broadly arched venter.

One of the specimens which apparently was used by Etheridge in drawing his composite figure of *Ammonites daintreei* is selected and figured as the holotype of this species. Probably the smallest form figured by Etheridge (1, pl. 24, fig. 2) also represents this species, but the specimen seems to have been mislaid.

Dimensions.—Holotype: 130. 45. 32. 30.

Locality.—Hughenden (Q.M. Coll.—Holotype and other specimens).

Genus COPHINOCERAS nov.²

Genotype: *Cophinoceras ogilviei* sp. nov.

Definition.—Involute inflated shells with ovate whorl section, arched venter and narrow umbilicus. Test ornamented with about eight rectiradiate costæ between which are minor costæ.

² κόφινος, a basket.

Remarks.—The genus bears considerable resemblance to such later desmoceratids as *Austeniceras* and *Parapuzosia*. The costæ are very like those of the group of *Beudanticeras* which includes *B. dupinianum* (d'Orb.), *B. parandieri* (d'Orb.), and *B. subparandieri* Spath, from which group it has probably developed. Indeed it might be thought advisable to include those three species in *Cophinoceras*; but, from the degree of inflation and the rather more curved costæ, they are here regarded as being more appropriately left in *Beudanticeras*.

Only the one species yet is known.

Age.—Upper Albian.

COPHINOCERAS OGILVIEI sp. nov.³

(Plate XXVI, figures 4 a, b.)

Description.—Coiling oligogyral, angustumbilicate. Inflated; sides convergent, venter arched, whorl-section ovate. Test thick, with about eight rectiradiate costæ, each pair of such major costæ being separated by eight to twelve minor costæ. Septal suture very imperfectly known.

Remarks.—Two specimens are known, the larger of which is taken as the holotype. The prominent straight ribs, divided into a few major costæ separated by minor costæ, render it distinct from any other desmoceratid described from Eastern Australia.

Dimensions.—Holotype: 183. 53. 33. 15.

Q.M. Coll.: 93. 56. 37. 18 (?).

Locality and Horizon.—Bynoe River, North Queensland (Q.M. Coll., holotype). Mouth of Bynoe River (Q.M. Coll.). The specimens are associated with other Tambo Series (Upper Albian) species. But since they were found both in the extreme north of the Cretaceous outcrop of the Artesian basin and nearer its presumed Cretaceous connection with the open sea, it may be that this species represents an horizon rather higher than any met with in the main area of the basin. However, in the large collection of specimens examined by the writer from the Point Charles bed (*substuderi* zone), which represents an Albian horizon slightly later than the Tambo Series, no specimen of a *Cophinoceras* has been seen.

³ The species is named in honour of Mr. C. Ogilvie, B.E., in recognition of his important work in the Cretaceous areas of Western Queensland.

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EXPLANATION OF PLATES.

Plate XXV.

- Fig. 1.—*Beudanticeras ingente* sp. nov. Holotype ($\times 0.5$). From Beaconsfield (G.S.Q. Coll.).
- Fig. 2.—*Beudanticeras mitchelli* (Etheridge). Lectotype ($\times 0.5$). From Marathon (Q.M. Coll.).
- Fig. 3.—*Beudanticeras flindersi* (McCoy). Holotype ($\times 0.5$). From Base of Walker's Tableland, near Hughenden (N.M. Coll.).
- Fig. 4.—*Beudanticeras sutherlandi* (Etheridge). Holotype (nat. size). From Marathon (Q.M. Coll.).

Plate XXVI.

- Fig. 1 (a), (b)—*Desmoceras* (?) sp. (nat. size). Specimen from Hughenden. (M.M. Coll.).
- Fig. 2.—*Boliteceras daintreei* (Etheridge). Holotype ($\times 0.5$). From Hughenden (Q.M. Coll.).
- Fig. 3.—*Boliteceras perlatum* sp. nov. Holotype ($\times 0.5$). From Hughenden (Q.M. Coll.).
- Fig. 4.—*Cophinoceras ogilviei* gen. et sp. nov. Holotype ($\times 0.5$). From Bynoe River (Q.M. Coll.).